

Concl'd C2
b1

10 said pressure buffer chamber are respectively arranged in [this order in the
11 same] sequence along a thickness direction of said piezoelectric block (A),
12 and

13 one of said fixed walls is disposed adjacent to said ink pressure
14 chamber [and/or] and another of said fixed walls is disposed adjacent to said
15 pressure buffer chamber [in reference to said the same direction].

Amend C3

1 3. (Amended) An ink-jet recording head comprising at least
2 one piezoelectric block (B) having [an] (a) first and second ink pressure
3 [chamber] chambers, each pressure chamber communicating with a [nozzles]
4 nozzle for ejecting ink [to be] supplied from an ink [introducing portion]
5 supply, (b) first and second partition walls, each partition wall serving as a
6 driving [portions] portion for one of the two ink pressure chambers, each
7 partition wall including a piezoelectric [elements] element and at least two
8 electrodes for driving said piezoelectric [elements] element, (c) a pressure
9 buffer chamber, and (d) first and second fixed walls,

b2

10 wherein [said piezoelectric block (B) is configured such that a]
11 the first ink pressure chamber, [a] the first partition wall [serving as a
12 driving portion], said pressure buffer chamber, [a] the second partition wall
13 [serving as a driving portion,] and [a] the second ink pressure chamber are
14 arranged in [the same direction] sequence along a thickness direction of said
15 piezoelectric block (B),

16 said first fixed wall[s being] disposed adjacent to said first ink
17 pressure chamber and said second fixed wall disposed adjacent to said second
18 ink pressure chamber [in reference to said the same direction].

Subj F3

1 4. (Amended) An ink-jet recording head comprising:
2 at least one piezoelectric block (A) having (a) an ink pressure
3 chamber (A) communicating with a nozzle (A) for ejecting ink [to be]
4 supplied from an ink [introducing portion] supply, (b) a partition wall (A)
5 serving as a driving portion that includes [including] a piezoelectric element

6 (A) and at least two electrodes (A) for driving said piezoelectric element (A),
7 (c) a pressure buffer chamber (A), and (d) two fixed walls (A); and

8 at least one piezoelectric block (B) having (a) first and second
9 ink pressure chambers (B), each ink pressure chamber (B) communicating
10 with a nozzles nozzle (B) for ejecting ink [to be] supplied from an ink
11 introducing portion supply, (b) first and second partition walls (B), each
12 partition wall (B) serving as a driving [portions] portion for one of the two
13 ink pressure chambers, each partition wall (B) including a piezoelectric
14 [elements] element (B) and at least two electrodes (B) for driving said
15 piezoelectric [elements] element (B), (c) a pressure buffer chamber (B), and
16 (d) first and second fixed walls (B),

17 wherein said piezoelectric block (A) is configured such that said
18 ink pressure chamber (A), said partition wall (A) [serving as the driving
19 portion] and said pressure buffer chamber (A) are respectively arranged in
20 [this order in the same] sequence along a thickness direction,

21 one of said fixed walls (A) is disposed adjacent to said ink
22 pressure chamber (A) [and/or] and another of said fixed walls is disposed
23 adjacent to said pressure buffer chamber (A) [in reference to said the same
24 direction],

25 said [piezoelectric block (B) is configured such that a] first ink
26 pressure chamber (B), [a] the first partition wall (B) [serving as a driving
27 portion], said pressure buffer chamber (B), [a] the second partition wall (B)
28 [serving as a driving portion], and [a] the second ink pressure chamber (B)
29 are arranged in [the same direction] sequence along the thickness direction of
30 said piezoelectric block (B), and

31 said first fixed wall[s] (B) [is] disposed adjacent to said first ink
32 pressure chamber (B) and said second fixed wall (B) disposed adjacent to
33 said second ink pressure chamber (B) [in reference to said the same
34 direction].

sub C4
(cont.)

5. (Amended) The ink-jet recording head as set forth in [any one of] claim[s] 1 [to 4], wherein said piezoelectric block[s] (A) [and (B) are] is a block molding[s] molded integrally by baking powder including a piezoelectric material.

Please add the following new claims:

sub C5

39. (Newly Added) The ink-jet recording head as set forth in claim 3, wherein said piezoelectric block (B) is a block molding molded integrally by baking powder including a piezoelectric material.

1 40. (Newly Added) The ink-jet recording head as set forth in
2 claim 4, wherein said piezoelectric blocks (A) and (B) are block moldings
3 molded integrally by baking powder including a piezoelectric material.

1 41. (Newly Added) The ink-jet recording head as set forth in
2 claim 5, wherein said block molding is molded by baking a lamination
3 obtained by laminating sheets made of the powder and a binder.

sub F3

1 42. (Newly Added) The ink-jet recording head as set forth in
2 claim 39, wherein said block molding is molded by baking a lamination
3 obtained by laminating sheets made of the powder and a binder.

1 43. (Newly Added) The ink-jet recording head as set forth in
2 claim 40, wherein said block molding is molded by baking a lamination
3 obtained by laminating sheets made of the powder and a binder.

sub C6

1 44. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said piezoelectric block (B) is repeatedly arranged in the
3 thickness direction, or in a direction perpendicular to the thickness direction.

1 45. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said piezoelectric block (B) is repeatedly arranged in the
3 thickness direction, and in a direction perpendicular to the thickness
4 direction.

1 46. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein at least two piezoelectric blocks (B) are integrated with
3 each other by baking.

1 47. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein at least two piezoelectric blocks (B) are welded to each
3 other via an adhesive.

1 48. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein at least two piezoelectric blocks (B) are arranged on a
3 predetermined base member without being welded to each other.

1 49. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a piezoelectric block assembly composed of at least two
3 piezoelectric blocks (B) integrated with each other by baking is welded to
4 another assembly composed of at least two piezoelectric blocks (B) integrated
5 with each other by baking or is welded to said piezoelectric block (B) via an
6 adhesive.

1 50. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein an assembly composed of at least two piezoelectric blocks
3 (B) integrated with each other by baking is arranged on a predetermined base
4 member without being welded to another assembly composed of at least two
5 piezoelectric blocks (B) integrated with each other by baking or to said
6 piezoelectric block (B).

1 51. (Newly Added) The ink-jet recording head as set forth in
2 claim 1, wherein a length of said fixed wall in the thickness direction is
3 greater than that of said partition wall in the thickness direction.

1 52. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a length of said fixed wall in the thickness direction is
3 greater than that of said partition wall in the thickness direction.

1 53. (Newly Added) The ink-jet recording head as set forth in
2 claim 4, wherein a length of each of said fixed walls (A) and (B) in the
3 thickness direction is greater than that of a respective partition wall (A) and
4 (B) in the thickness direction.

sub C7

1 54. (Newly Added) The ink-jet recording head as set forth in
2 claim 1, wherein said fixed wall includes a portion firmer than said partition
3 wall.

Sub F3

1 55. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said fixed wall includes a portion firmer than said partition
3 wall.

Sub F3

1 56. (Newly Added) The ink-jet recording head as set forth in
2 claim 4, wherein each of said fixed walls (A) and (B) includes a portion
3 firmer than a respective partition wall (A) and (B).

Sub C8

1 57. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said fixed wall includes a hollow portion.

Sub F3

1 58. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said pressure buffer chamber is closed on a side at which
3 said nozzle communicating with said ink pressure chamber is open.

Sub F3

1 59. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein said pressure buffer chamber communicates with an air
3 inlet/outlet path connected outside of said recording head.

Sub C9

1 60. (Newly Added) The ink-jet recording head as set forth in
2 claim 42, wherein said electrode has a mesh-like structure.

Sub F3

1 61. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a number of said electrodes is two.

Sub F3

1 62. (Newly Added) The ink-jet recording head as set forth in
2 claim 61, wherein one of said electrodes is exposed to one of said ink
3 pressure chamber and said pressure buffer chamber.

1 63. (Newly Added) The ink-jet recording head as set forth in
2 claim 61, wherein one of said electrodes is exposed to said pressure buffer
3 chamber.

1 64. (Newly Added) The ink-jet recording head as set forth in
2 claim 61, wherein both of said electrodes are exposed to said ink pressure
3 chamber and said pressure buffer chamber.

1 65. (Newly Added) The ink-jet recording head as set forth in
2 claim 61, wherein both of said electrodes are embedded inside said partition
3 wall.

1 66. (Newly Added) The ink-jet recording head as set forth in
2 claim 65, wherein one of said electrodes is disposed apart from said ink
3 pressure chamber with a predetermined distance (L1), and the other electrode
4 is disposed apart from said pressure buffer chamber with a predetermined
5 distance (L2),

6 the distance (L1) and (L2) satisfying the relationship of $L1 \neq L2$.

1 67. (Newly Added) The ink-jet recording head as set forth in
2 claim 65, wherein one of said electrodes is disposed apart from said ink
3 pressure chamber with a predetermined distance (L1), and the other electrode
4 is disposed apart from said pressure buffer chamber with a predetermined
5 distance (L2),

6 the distance (L1) and (L2) satisfying the relationship of $L1 > L2$.

1 68. (Newly Added) The ink-jet recording head as set forth in
2 claim 61, wherein at least one electrode is further interposed between said
3 two electrodes.

1 69. (Newly Added) The ink-jet recording head as set forth in
2 claim 62, wherein said electrode disposed at the surface exposed to said ink
3 pressure chamber is grounded.

1 70. (Newly Added) The ink-jet recording head as set forth in
2 claim 64, wherein said electrode disposed at the surface exposed to said ink
3 pressure chamber is grounded.

1 71. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a portion at which said electrodes disposed at said partition
3 wall face each other is included in a portion at which said ink pressure
4 chamber and said pressure buffer chamber face each other.

1 72. (Newly Added) The ink-jet recording head as set forth in
2 claim 71, wherein a length of one of said electrodes in a direction
3 perpendicular to the thickness direction is different from a length of the other
4 electrode adjacent to said one electrode in the same direction.

1 73. (Newly Added) The ink-jet recording head as set forth in
2 claim 72, wherein one of said electrodes is included in a portion at which
3 said ink pressure chamber and said pressure buffer chamber face each other,
4 and the other electrode adjacent to said one electrode divides the portion at
5 which said ink pressure chamber and said pressure buffer chamber face each
6 other.

1 74. (Newly Added) The ink-jet recording head as set forth in
2 claim 73, wherein said adjacent dividing electrode is thicker than said one
3 electrode.

1 75. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a length of said ink pressure chamber in a direction
3 perpendicular to the thickness direction is different from a length of said
4 pressure buffer chamber in the same direction.

1 76. (Newly Added) The ink-jet recording head as set forth in
2 claim 3, wherein a distance between said nozzles is constant in the same
3 direction.

1 77. (Newly Added) The ink-jet recording head as set forth in
2 claim 45, wherein m nozzle alignments, in which said nozzles
3 communicating with said ink pressure chambers are aligned in an arbitrary
4 number in the same direction as the moving direction of said ink-jet
5 recording head in an ink-jet printer, are arranged in a direction perpendicular
6 to the moving direction,

7 said nozzles are aligned without any overlapping in the
8 direction perpendicular to the moving direction, and $X \leq P/m$

9 wherein X represents a deviation between said nozzles nearest
10 each other out of said nozzles in reference to the moving direction and P

*Concluded
CJO*
11 represents a distance between said nozzles belonging to said same nozzle
12 alignment.

*1
2
3*
78. (Newly Added) The ink-jet recording head as set forth in
claim 77, wherein the distance between said adjacent nozzle alignments in the
direction perpendicular to the moving direction is a multiple of X.

*1
2
3*
79. (Newly Added) The ink-jet recording head as set forth in
claim 77, wherein the moving direction accords with the arranging direction
of said ink pressure chamber and said pressure buffer chamber.

*1
2
3*
80. (Newly Added) The ink-jet recording head as set forth in
claim 77, wherein the moving direction does not accord with the arranging
direction of said ink pressure chamber and said pressure buffer chamber.

Respectfully Submitted,

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